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COMMONWEALTH OF PENNSYLVANIA.

ANNOUNCEMENT

RELATIVE TO THE

LABORATORY WORK

OF THE

DEPARTMENT OF HEALTH.

SAMUEL G. DIXON, M. D., Commissioner of Health.

ALLEN J. SMITH, M. D., *Director of Pathology.*

HERBERT FOX, M. D. *Chief of the Laboratories.*

HARRISBURG.:

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1906.

The laboratory facilities herein offered will be for work only in connection with your practice outside of municipalities having laboratories for the same purpose.

LABORATORY ADDRESS :
DEP'T OF HEALTH OF PENNSYLVANIA,
Care of University of Pennsylvania,
PHILADELPHIA, PA.

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Health.
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COMMONWEALTH OF PENNSYLVANIA.

ANNOUNCEMENT

RELATIVE TO THE

LABORATORY WORK

OF THE

DEPARTMENT OF HEALTH.

In offering to the physicians of this Commonwealth, through the liberality of the University of Pennsylvania, laboratory facilities for the diagnosis of certain morbid conditions and the detection of obscure sources of disease, it is considered important to briefly outline the character of this work in order that the significance of the results may be justly estimated.

Facilities will be afforded at this time for examinations in the following suspected diseased conditions:

TUBERCULOSIS.—An examination of sputum, pus, exudates, feces and urine for the presence of tubercle bacilli.

The value of demonstrating the actual presence of tubercle bacilli in the sputum or other excretions of a tuberculous patient must be

apparent to every practitioner of medicine. In probably no other affection does recovery as well as the safety of the patient's associates depend in so great a degree upon a correct and early diagnosis.

The examination of the sputum, in chronic pulmonary conditions simulating tuberculosis, will often clear the diagnosis of, for example, unresolved pneumonia, bronchiectasis of non-tuberculous. If the true nature of the disease ectasis.

Chronic cervical adenitis, as is well known, is frequently of tuberculous nature, and the products may carry tubercle bacilli. Even when the adenitis is more acute it may still be tuberculosis. If the true nature of the disease be known, proper prophylactic measures may be taken to prevent the extension of the process to the rest of the lymphatic system. Examination of pus obtained by operative procedures from chronic joint affections, and other similar conditions, often reveals the presence of tubercle bacilli, and supplies a warning of what might follow if the process were allowed to go on and affect the bone. Pus from cold abscesses is commonly tuberculous. Urine from tuberculous kidneys usually contains the infecting organisms, and should be examined when any suspicion exists of this disease in these organs.

About three-fourths of the sub-acute or chronic pleural effusions are tuberculous, and

if the lungs be not first involved they may easily become so from extension inward. A specimen of the fluid obtained by aspiration of the pleural cavity, or a portion drawn in a

ERRATA.

Page 2, paragraph 2 should read: *The examination of the sputum in chronic conditions simulating tuberculosis will often clear the diagnosis of, for example, unresolved pneumonia, bronchiectasis of non-tuberculous nature, and various degrees of atelectasis.*

Page 2, line 16. For *tuberculosis* read *tuberculous*.

THE PRACTITIONER WHO HASTENS TO verify the correctness of his suspicions by modern laboratory tests.

In cases of suspected tuberculosis of the skin, (lupus) correspondence is invited which may determine the best methods to be employed in endeavoring to obtain a pathological diagnosis.

TYPHOID FEVER.—An examination of the blood by the Widal test and an examination of the urine for Ehrlich's diazo reaction.

The difficulty frequently attendant upon a clinical diagnosis of typhoid fever and parti-

cularly in cases of the ambulant or walking type is removed in a very large degree by the application of the Widal test. This test consists in adding a culture of genuine typhoid bacilli to a drop of blood serum or a solution containing the dried blood from a suspected typhoid patient. If the bacilli in this mixture lose their motility and are found clumped together in a hanging drop preparation, the presence of typhoid fever is strongly indicated. According to the most reliable observers this test is confirmatory in at least 95 per cent. of typhoid cases. In about 50 per cent. of these positive cases it will be found on or about the eighth day, in 25 per cent. during the second week, in 20 per cent. during the third week, and in the remaining 5 per cent. it may be as late as the fourth week. A negative result in the early stages of a suspected case should be followed by a second examination if the clinical symptoms continue. The conditions which may interfere with the test and which sometimes give a positive reaction, are a previous attack of typhoid fever within 2 years (many times much longer), and the existence of some other morbid conditions, the most prominent of which is probably tuberculosis.

Ehrlich's diazo reaction in the urine is a valuable confirmatory test in typhoid and often appears before the Widal, so that it is advisable when sending specimens of blood for the Widal, also to send samples of urine. The urine in

positive cases will show this reaction usually at the fourth or fifth day of the fever; that is, a few days previous to the appearance of the blood reaction. The characteristic diazo is sometimes found in other affections and the positive results obtained in connection with repeated negative Widal's and the continuation of marked clinical symptoms are strong presumptive evidence of tuberculosis, generally of the acute miliary type. The diazo usually disappears after the third week of typhoid and persists indefinitely in the case of acute miliary tuberculosis.

MALARIA.—An examination of the blood for the presence of the malarial plasmodium.

The blood in true malarial fever presents a distinctive parasite, the *Plasmodium malariae*. Malarial fever is transmitted from one human being to another through the medium of the mosquito. A mosquito, biting a person infected with malaria becomes itself infected and after the expiration of from eight to twenty-one days is in a condition to infect any person it subsequently bites. Not only does the distinctive parasite appear in malarial affections, but each individual type of infection, be it tertian, quartan or aestivo-autumnal, has its corresponding type of organism.

This distinctive parasite appears in the blood in from 5 to 22 days after the bite of the insect, according to the variety of the infection, and may retain its infectious qualities over a long

period of time, and in fact may seem to become possessed of a renewed vitality after a more or less extended dormant period following active treatment. From the foregoing statements it is evident that a pathological examination in suspected malarial conditions is most important, not alone in establishing the character of the disease, but also in determining a positive recovery. The administration of quinine may to some extent influence the possibility of discovering the parasite by causing its disappearance from the capillary blood; therefore in forwarding blood specimens, exact information should be given as to the amount and recency of dosage. It may at times be impossible to determine from the blood smear exactly the type of infection. If this occur it will be reported upon the return card.

DYSENTERY.—An examination of the feces for the presence of dysentery bacilli or the amoeba dysenteriae.

The differentiation between the bacillary and amoebic forms of dysentery on account of the sequelae which frequently follow the latter type, is a matter of importance to the medical practitioner. The sequelae, among which a liver abscess is the most common and serious, may be watched for when the existence of amoebae in the intestines has been demonstrated. The method of elimination of the infectious material and the possibility of contamination of drinking water by this material,

makes the pathological diagnosis likewise a particularly important one from the standpoint of public health.

It usually requires several days to complete the tests for these organisms, especially the bacillus of dysentery.

PARASITIC INTESTINAL DISEASES.—An examination of feces for the presence of characteristic parasites or their ova.

A verification of a suspicion of the presence of intestinal parasites, by an examination of the fecal discharges, must of necessity relieve the doubt in which many cases of indefinite intestinal troubles are held when only clinical symptoms are considered.

The object of this examination is to determine the presence of animal parasites or to diagnose the nature of the parasite when it is known to exist. So in the case of some severe anemias the diagnosis might be cleared up by finding the ova of the *Anchylostoma duodenale* (*Uncinaria*).

This too has a bearing upon the meat and fish supply of the patients, since some worms, especially tape worms, are transmitted by infected animal foods. If a worm be known to exist and can be obtained, as much as possible should be sent for determination. As the head is usually a diagnostic feature it should be obtained if possible.

MORBID GROWTHS.—An examination of sections of tumors or the products of the infectious granulomata either obtained during life or at post mortem.

By means of microscopic examination of the tissue of a growth it is possible to determine the character of the tumor and to indicate with a fair degree of certainty its benign or malignant nature.

Sections to be sent for examination should be cut cleanly (not torn) into sizes that will fit in the bottle supplied in Outfit No. 3. Cutting should include a piece of the margin or capsule of any growth or tissue, as well as a portion of the interior.

PATHOLOGIC FLUIDS.—An examination to determine the specific organisms.

This heading includes specimens of pus, effusions, urine, etc., which are supposed to contain pathogenic bacteria. This would naturally include fluids obtained at autopsies or operations.

In this manner the origin of an infection may be traced and the original focus treated.

DIPHTHERIA.—Delay in the treatment of diphtheria and in immunization against it so frequently mean disaster that the application of remedial measures should not be delayed for the purpose of securing a pathological diagnosis. The immediate administration of antitoxin,

which may always be secured free of charge to the indigent from any one of the Department's distributors, should be paramount to any confirmatory laboratory diagnosis which may require several days to secure.

For this reason diphtheria has not been included in the list of morbid conditions previously mentioned in this pamphlet for which laboratory examinations will be provided.

To shorten the quarantine period for diphtheria from 21 to 14 days, physicians may take advantage of nearby laboratories, whereas, the time consumed before the physician can receive a report, makes it impracticable for the Department to invite the sending of specimens for this purpose.

DESCRIPTION OF OUTFITS.

The following outfits have been prepared for forwarding the above mentioned specimens to the laboratory.

OUTFIT NO. 1.—For taking blood specimens for malaria. This consists of two glass slides and a needle in a box.

The directions for preparing the blood will be pasted on the box. A wrapper to be used for mailing the box to the laboratory will be found beneath the original wrapper as sent from the Department of Health.

OUTFIT NO. 2.—For sending blood for Widal test in typhoid fever.

This will consist of a paper slip upon which blood drops are to be sent. Instructions will be found with the outfit, and envelope for mailing to the laboratory will be found within the original wrapper as sent from the Department of Health.

OUTFIT NO. 3.—For sending specimens of urine for diazo or bacteriological examinations, feces, pus, exudates or pieces of morbid growths.

This consists of a *sterilized* wide mouthed bottle, in a wooden box. Instructions will be found pasted on the box. A wrapper for mailing to the laboratory will be found within the original wrapper as sent from the Department of Health. Sections of tumors should be covered with a 4 per cent. solution of formaldehyde, and, if this be not obtainable, with pure alcohol (*not wood alcohol*). If it be necessary to send larger sections of morbid growths than can be accommodated in the small bottle, they should be placed in suitable jars which can be tightly closed, covered with either of the same solutions, carefully packed in wooden boxes and forwarded to the laboratory by express.

Request cards, to be returned with each specimen, will be furnished with the supplies. No specimen will be examined unless a request card is properly filled out and forwarded. If there be any interesting clinical features asso-

ciated with the case which cannot be fully set out on this card, it will be appreciated if they are supplied at the same time, and correspondence is invited upon all subjects relating to the pathological work as outlined.

The spaces on the request card and instruction sheet for the number (No. —) are not to be filled in by the physician.

The specimens are intended to be sent by mail. The request card is to be sent to the laboratory, in the envelope so directed, and not included in the package containing the specimen. All additional information or questions may be included in this envelope.

In addition to the above mentioned, examinations of the following will be made:

WATER.—A bacteriological examination for the presence of sewage bacteria and a count of the total number of bacteria per cubic centimeter in the water and a chemical examination of its general characteristics.

MILK.—A bacteriological examination for the presence of pathogenic bacteria and a count of the total bacteria per cubic centimeter.

BUTTER.—A bacteriological examination for the presence of pathogenic organisms.

As the examinations of the last three substances will require special information relative to the circumstances and surroundings under

which specimens are to be collected and transported, application for the same should be made to the Commissioner of Health, at Harrisburg, upon receipt of which definite instructions will be forwarded to the applicant.





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